

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-5 are all the claims pending in the application. Applicant respectfully submits that the pending claims define patentable subject matter.

Claims 1 and 2 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 1 and 2 also stand rejected under 35 U.S.C. § 101 as allegedly being an improper definition of a process. Applicant respectfully submits that these rejections are improper.

Independent claim 1 is directed to “[a] method for modulating a non-return to zero (NRZ) signal transmitted to a receiver utilizing alternating left side and right side filtering for adjacent channels having alternating channel spacing.” The method of claim 1 recites:

modulating channels which are to be subjected to the right
side filtering using a modulator with a positive chirp; and
modulating channels which are to be subjected to the left
side filtering using a modulator with a negative chirp.

Thus, independent claim 1 positively recites two steps of modulating channels and defines the type of modulators that perform the modulating.

In other words, the method of claim 1 requires, in part, modulating channels in different ways depending on whether said channels are subjected to left side or right side filtering. Applicant therefore submits, that it is quite clear that independent claim 1 recites active, positive steps, e.g., “modulating channels,” which encompass how the method is practiced.

Consequently, Applicant submits that claim 1 distinctly claims the subject matter Applicant regards as the invention. Further, Applicant submits that claim 1 properly defines a patentable method under 35 U.S.C. § 101. Similarly, Applicant submits that claim 2 also defines patentable subject matter, at least by virtue of its dependency on claim 1.

Accordingly, the Examiner is requested to remove the §112 and §101 rejections. Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bigo et al, “5.12 Tbit/s (128x40 Gbit/s WDM) transmission over 3x1000 km of TeraLight Fibre,” (hereinafter referred to as “Bigo”) in view of Shirasaki (U.S. Patent No. 6,556,742). Applicant respectfully submits that claims 1 and 2 would not have been rendered obvious in view of the combined references.

As noted above, claim 1 requires, *inter alia*, that channels subjected to right side filtering are modulated with a positive chirp, and that channels subjected to left side filtering are modulated with a negative chirp.

The Examiner asserts that Bigo discloses all of the features of the claimed invention except “the modulator provide[s] positive and negative chirp.” Nevertheless, the Examiner goes on to assert that Fig. 1 of Bigo “show[s] left-side filtering and right-side filtering,” and that “[t]he control point to provide left-side filtering may be considered as negative chirp and the control point to provide right-side filtering may be considered as positive chirp.”² In other words, the Examiner concedes that Bigo fails to teach or suggest providing positive and negative chirp, but

² See Office Action, lines 15-22.

then the Examiner asserts that Bigo teaches left and right-side filtering, which may be considered as positive and negative chirp. While Applicant agrees that Bigo fails to teach or suggest positive and negative chirp. Applicant respectfully submits that left and right-side filtering may not be considered as positive and negative chirp, as the Examiner contends.

The Examiner further cites FIGS. 16B and 16C, and col. 12, lines 30-38, and col. 13, lines 26-39 of Shirasaki for allegedly disclosing using a Mach-Zehnder modulator to separate optical signals into odd and even channels “which may be considered as left-side and right-side.” Applicant respectfully disagrees with the Examiner’s position.

The Examiner has not provided any reasonable basis for his conclusory assertion that the control point to provide left-side filtering may be considered as negative chirp and the control point to provide right-side filtering may be considered as positive chirp. Nor has the Examiner provided any reasonable basis for his assertion that odd and even channels may be considered as left-side and right-side. It is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This burden can only be satisfied by an objective teaching in the prior art or by cogent reasoning that the knowledge is available to one of ordinary skill in the art. *See In re Lahu*, (747 F.2d 703, 223 U.S.P.Q. 1257 (Fed. Cir. 1984)).

Moreover, the cited references, either alone or in combination, do not teach or suggest modulating channels subjected to right side filtering using a modulator with a positive chirp, and modulating channels which are to be subjected to the left side filtering using a modulator with a negative chirp, as claimed. Indeed, neither reference teaches or suggests using positive or

negative chirp, or modulating channels to be subjected to right side filtering and left side filtering using modulators with different chirps, in any way whatsoever. Furthermore, the Examiner does not even address the specific limitations of claim 1, i.e., channels subjected to right side filtering are modulated with a positive chirp, and channels subjected to left side filtering are modulated with a negative chirp.

Lastly, Applicant respectfully submits that one of ordinary skill in the art at the time the invention was made would not have been motivated to combine and modify the cited references to produce the claimed invention. The Examiner's assertion that "it would have been obvious to ... utilize Mach-Zehnder modulators to provide left-side and right-side filtering ... in order to increase transmission rate" is not supported by the teachings of Bigo and/or Shirasaki, and moreover, completely fails to address the recited features of claim 1. That is, simply using Mach-Zehnder modulators to provide left and right side filtering would not result in "modulating channels which are to be subjected to the right-side filtering using a modulator with a positive chirp, and modulating channels which are to be subjected to left-side filtering using a modulator with a negative chirp."

Accordingly, Applicant submits that independent claim 1, as well as dependent claim 2, are allowable because the cited references, alone or in combination, fail to teach or suggest all of the required features of the claims, and one of ordinary skill in the art at the time the invention was made would not have been motivated to combine and modify the cited references to produce the claimed invention.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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